# FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 200.8

| | | | |
|---|---|---|---|
| Client ID: | M03230 | Client: | Alaskan Copper Works |
| Date Received: | 11/05/08 | Project: | PO M03230, F&BI 811029 |
| Date Extracted: | 11/05/08 | Lab ID: | 811029-01 x10 |
| Date Analyzed: | 11/06/08 | Data File: | 811029-01 x10.010 |
| Matrix: | Water | Instrument: | ICPMS1 |
| Units: | ug/L (ppb) | Operator: | hr |

| Internal Standard: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| Germanium | 104 | 60 | 125 |

| Analyte: | Concentration ug/L (ppb) |
|---|---|
| Chromium | 349 |
| Nickel | 354 |
| Copper | 1,280 |
| Zinc | 234 |

## Analysis For Total Metals By EPA Method 200.8

| | | | |
|---|---|---|---|
| Client ID: | Method Blank | Client: | Alaskan Copper Works |
| Date Received: | Not Applicable | Project: | PO M03230, F&BI 811029 |
| Date Extracted: | 11/05/08 | Lab ID: | I8-414 mb |
| Date Analyzed: | 11/06/08 | Data File: | I8-414 mb.008 |
| Matrix: | Water | Instrument: | ICPMS1 |
| Units: | ug/L (ppb) | Operator: | hr |

| Internal Standard: | % Recovery: | Lower Limit: | Upper Limit: |
|---|---|---|---|
| Germanium | 105 | 60 | 125 |

| Analyte: | Concentration ug/L (ppb) |
|---|---|
| Chromium | <1 |
| Nickel | <1 |
| Copper | <1 |
| Zinc | <2 |

Date of Report: 11/10/08
Date Received: 11/05/08
Project: 3317 Catch Basin, PO M03230, F&BI 811029

## QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 811030-02 x10 (Duplicate)

| Analyte | Reporting Units | Sample Result | Duplicate Result | Relative Percent Difference | Acceptance Criteria |
|---|---|---|---|---|---|
| Chromium | ug/L (ppb) | <10 | <10 | nm | 0-20 |
| Nickel | ug/L (ppb) | <10 | <10 | nm | 0-20 |
| Copper | ug/L (ppb) | 61.9 | 65.9 | 6 | 0-20 |
| Zinc | ug/L (ppb) | <10 | <10 | nm | 0-20 |

Laboratory Code: 811030-02 x10 (Matrix Spike)

| Analyte | Reporting Units | Spike Level | Sample Result | Percent Recovery MS | Acceptance Criteria |
|---|---|---|---|---|---|
| Chromium | ug/L (ppb) | 20 | <10 | 100 | 50-150 |
| Nickel | ug/L (ppb) | 20 | <10 | 95 | 50-150 |
| Copper | ug/L (ppb) | 20 | 61.9 | 101 b | 50-150 |
| Zinc | ug/L (ppb) | 50 | <10 | 99 | 50-150 |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|---|---|---|---|---|
| Chromium | ug/L (ppb) | 20 | 111 | 70-130 |
| Nickel | ug/L (ppb) | 20 | 110 | 70-130 |
| Copper | ug/L (ppb) | 20 | 108 | 70-130 |
| Zinc | ug/L (ppb) | 50 | 96 | 70-130 |

# Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probablility.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

November 10, 2008

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on November 5, 2008 from the 3317 Catch Basin, PO M03230, F&BI 811029 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ACU1110R.DOC

811029

# SAMPLE CHAIN OF CUSTODY ME 11/5/08 AI4

Page # 1 of 1

Send Report To Gerald Thompson
Company ALASKAN Copper works
Address 628 S. Hanford St
City, State, ZIP Seattle wa 98134
Phone # 206-577-6033 Fax # 206-382-4309

SAMPLERS (signature)

PROJECT NAME/NO. 337 Catch basin

PO # M03230

REMARKS

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH ASAP
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

| Sample ID | Lab ID | Date | Time | Sample Type | # of containers | TPH-Diesel | TPH-Gasoline | BTEX by 8021B | VOCs by 8260 | SVOCs by 8270 | HFS | Hg Cu, Ni, Zn | | | | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M03230 | 01 | 11/5/08 | 7:00am | H2O | 1 | | | | | | | X | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| | SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|---|---|---|---|---|---|
| Relinquished by: | | Gerald Thompson | ACW | 11/5/08 | 9:09 Am |
| Received by: | Heather Rankin | H. Rankin | F&B, I | 11/5/08 | 9:09a |
| Relinquished by: | | | | | |
| Received by: | | | | | |

Samples received at 15 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

AKC-00059095

## CASE NARRATIVE

This case narrative encompasses samples received on November 5, 2008 by Friedman & Bruya, Inc. from the Alaskan Copper Works 3317 Catch Basin, PO M03230, F&BI 811029 project. Samples were logged in under the laboratory ID's listed below.

| Laboratory ID | Alaskan Copper Works |
|---|---|
| 811029-01 | M03230 |

All quality control requirements were acceptable.